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METHOD OF OPERATION OF THE MECHANICAL SPADER

CAUTION: Prior to handling test materials, performing equipment setups, and/or conducting this method, testers are required to read **"SAFETY AND HEALTH"** in Section E of this method. It is the responsibility of the user of this method to consult and use departmental safety and health practices and determine the applicability of regulatory limitations before any testing is performed.

A. SCOPE

This method describes the procedure for operation of the mechanical spader.

B. APPARATUS

A mechanical spader shall be used to homogenuosly prepare bituminous materials for entry into a mechanical compactor. This device as shown in Figure 1.

C. PRINCIPAL OF OPERATION

The mechanical spader is a piece of equipment designed to prevent both the segregation of coarse and fine material and the formation of rock pockets in the stabilometer test specimen. The spader accomplishes this by introducing the mixture into the compaction mold from an endless belt while at the same time imparting a spading action to the mixture with four mechanically operated bullet-nosed steel rods. Each rod shall have a diameter of approximately 13 mm and a length of 585 mm.

D. PROCEDURE OF OPERATION

1. Turn on the master switch (upper switch).

2. Adjust the heat regulator to the proper position to maintain the desired compaction temperature. A setting of approximately 50 on the rheostat should give a temperature of approximately 110˚C on the feeder belt; this is the compaction temperature most commonly used. This setting may not be the same for all rheostats; consequently the operator should check the temperature on the belt surface by use of a surface or other suitable type thermometer and adjust the rheostat accordingly. When the belt temperature is correct, the temperature of the rotating plate is also correct. Also determine the rheostat setting required to give a temperature of 60˚C on the feeder belt. Once the settings have been established for the 110˚C and 60˚C temperatures, they should not vary with time sufficiently to affect the compaction temperature. Leave the rheostat in the zero position when compacting road mixed surfacing samples at room temperature.

3. Prepare and place material on the feeder belt in accordance with Part 2, E, of California Test 304. Particular care should be exercised to hold the lid in an open position with one hand while the material is being introduced from the scoop with the other hand. The hinging system for the lid was designed for a normally closed or down position and at no time should it be unattended in an open position.

4. Start the spader by setting the counter to zero and turning on the motor switch.

5. When approximately 15 mm of material is in the mold, release the stop bar that holds the spading rod grips out of play.

6. After the belt has emptied and the motor has stopped, re-engage the spading rod stop bar and manually raise the spading rods out of the way to facilitate removal of the mold and mold holder from the spader. The counter mechanism has been set to automatically stop the motor when the counter reads 90. Should the motor continue to run after the count of 90, it indicates the counter has been tampered with and should be reset.

7. To start the motor for subsequent spading operations, reset the counter to zero.

8. Spading rod ends should be wiped clean whenever the build-up mix is sufficient to interfere with the spading operation.

9. When spading operations for the day are completed, turn the switches off and clean the belt and trough while still hot by lightly scraping with a broad putty knife.

E. SAFETY AND HEALTH

Caution- The heated lid can cause burns when loading or cleaning the spader. The lid must remain closed to maintain compaction temperature.

Prior to handling, testing or disposing of any waste materials, testers are required to read: Part A (Section 5.0), Part B (Sections: 5.0, 6.0 and 10.0) and Part C (Section 1.0) of Caltrans Laboratory Safety Manual. Users of this method do so at their own risk.

REFERENCES:

California Test 304
Caltrans Standard Specifications

End of Text (California Test 107 contains 3 pages)

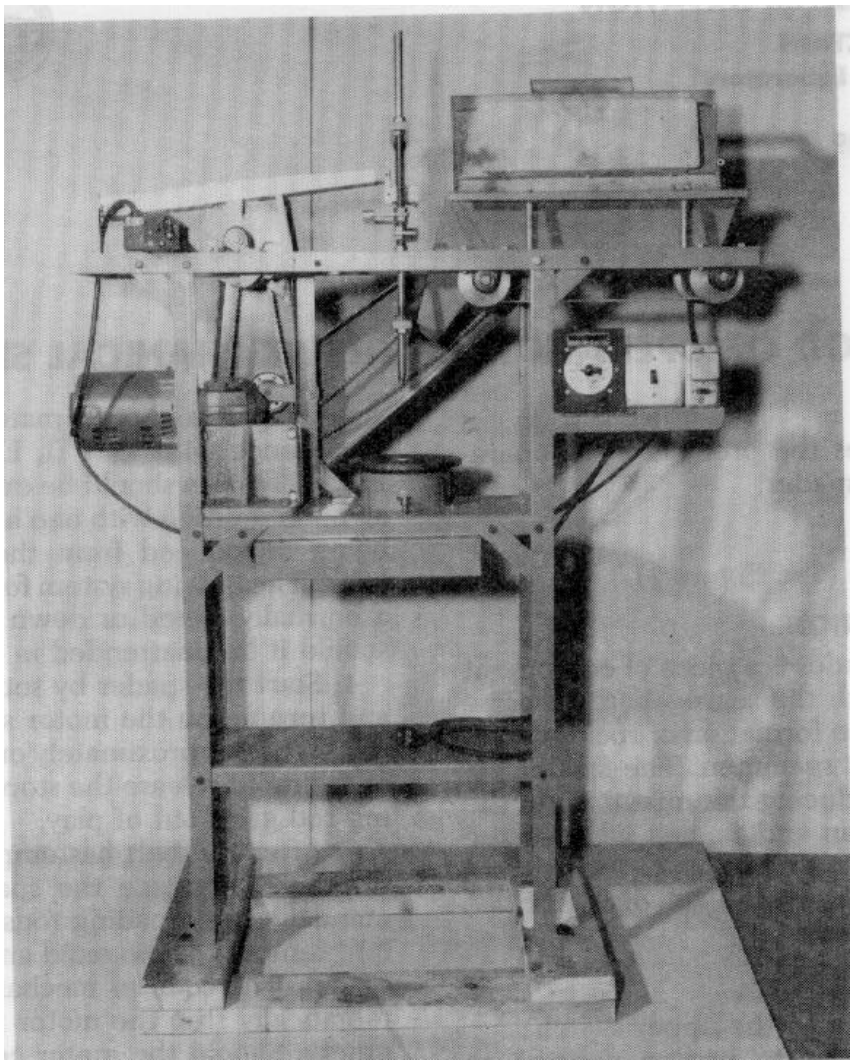

FIGURE 1 - MECHANICAL SPADER